What is Biofeedback?

Biofeedback (BFB) has been practiced in clinical settings since the 1970’s, and has become a commonly used treatment in stroke rehabilitation. Normal regulation of muscle tone can be disrupted by central nerve damage caused by a stroke. This can prevent your muscles from functioning adequately. With the help of electromyographic biofeedback (EMG-BFB), you can get feedback about whether your muscles are tense or relaxed.

Electromyography or EMG is when a set of electrodes is placed on the skin over the chosen muscle or muscle group. The electrodes detect the electrical signals that occur when a muscle is tense or contracted. This electrical signal provides a visual or auditory feedback as to whether or not your muscle is contracting, and the amount of contraction.

This biofeedback can help you re-educate your muscles to contract or relax at your own will, in order to increase voluntary muscle control.

Does it work for stroke?

Research has shown that the main reason for functional impairment following a stroke is upper extremity hemiparesis, which can affect important activities of daily living (e.g. feeding and dressing).

Biofeedback (BFB) is commonly used as a treatment intervention for stroke rehabilitation. Following a stroke, the main central motor pathways that regulate normal muscle tone and functioning can be disrupted or even damaged. However, some motor pathways that are often unused remain relatively unaffected by the stroke. Individuals may learn how to activate these unused pathways with the help of electromyographic biofeedback (EMG-BFB). This may
lead to improvements in muscle tone and functioning.

Specifically, studies have examined the use of biofeedback to improve:

- Hand function
- Upper extremity range of motion
- Upper extremity function

There is conflicting evidence that biofeedback interventions are effective for improving upper extremity function post-stroke. They are not effective for improving manual dexterity or for improving range of motion in the upper extremity post-stroke. Research also indicated that biofeedback interventions are not effective for improving upper extremity function at the follow-up evaluation.

**Who provides the treatment?**

A physiotherapist typically performs biofeedback for the upper extremity. Most rehabilitation centers and private clinics are equipped with EMG equipment.

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